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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/522,178	03/09/2000	Toshio Inoue	0303-0420	2307

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Birch Stewart Kolasch & Birch LLP  
Intellectual Property Law  
8110 Gatehouse Road  
Ste 500 East  
Falls Church, VA 22042-1210

EXAMINER
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LAO, LUN S

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 10/10/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/522,178

Applicant(s)

INOUE ET AL.

Examiner

Lun-See Lao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. This is response to an amendment filed on 07-22-2003. Claims 1, 6 and 7 have been amended and claim 8 has been canceled. Claims 1-7 and 9-10 are pending.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Jolly et al. (US PAT. 5,845,236).

Consider claim 3 Jolly teaches feed-forward control means (see fig.1c (38b)) for being supplied with a reference signal (30c', 30c", 30c''') highly correlated to noise from a noise source (such as prop wash Pm and tail wash Pt)) and generating a noise cancellation signal (39c and 35c) which is inherently out of phase to noise in the passenger compartment of a vehicle (see col.10 lines 20-41); canceling sound generating means (35c) disposed in the passenger compartment for generating a noise canceling sound in response to the noise cancellation signal from said feeds forward control means (see fig.1c (38b)); and a plurality of microphones (32c) for confirming cancellation of the noise in the passenger compartment; said feed-forward control

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means (see fig.1c, 38b) comprising means for lowering the levels of output signals from said microphones (see fig.1c, (32c downward microphone) when downward microphones compare to upward microphones), when with the noise cancellation signal (see col.1 line 60-col.2 line 40); said microphones (see fig.1c (32c microphones upward)) being positioned respectively near laterally spaced roof rails of the vehicle in confronting inherently relationship to ears of occupants seated in the passenger compartment (see col.10 lines 20-41).

Consider claims 4-5, Jolly teaches an active noise control circuit comprising:

feed-forward control means (see fig.1c (38b)) for being supplied with a reference signal ( such as, 30c', 30c" and 30c''' ) highly correlated to noise from a noise source ( such as prop wash Pm and tail wash Pt)and generating a noise cancellation signal (35c) which is out of phase to noise in the passenger compartment of a vehicle (see col.10 lines 20-59); canceling sound generating means (34c, 35c, 39c) disposed in the passenger compartment (42c) for generating a noise canceling sound (35c) in response to the noise cancellation signal (30c', 30c", and 30c''') from said feed forward control means (see fig.1c, (38b)); and a microphone for confirming (32c) cancellation of the noise in the passenger compartment (42c); said feed-forward control means (see fig.1c, (38b) ) comprising means for lowering the level (13) of an output signal from said microphones(see fig.1c, (32c downward microphone) when downward microphones compare to upward microphones), with the noise cancellation signal (see col.10-lines 20-41); said microphone (32c upward microphones) and approximately being positioned substantially near centrally between laterally spaced roof rails of the vehicle in

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confronting inherently relationship to the ear on the compartment side of an occupant seated in the passenger compartment( see fig.1c and col.10 lines 20-41); and a microphone (see fig.1c, (32c upward microphones)) approximately disposed near a central console in the passenger compartment (see fig.1c, 42c).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao (US PAT 5,651,072).

Consider claim 1, Nakao teaches an active noise control circuit comprising:

feed-forward control means (see fig.2) for being supplied with a reference signal (R) highly correlated to noise from a noise source (engine) and generating a noise cancellation signal (3) which is out of phase to noise in the passenger compartment of a vehicle (see col.4 line 25-col.5 line 5);

canceling sound generating means (3) disposed in the passenger compartment for generating a noise canceling sound in, response to the noise cancellation signal from said feed forward control means (see col.4 line 25-col.5 line 45); and

a microphone disposed centrally in the width direction of the vehicle and at an

antinode (antinode in the position of the microphone is give by the formula (1), (2) and (3)) of an acoustic normal mode of the passenger compartment, for generating an output signal as the reference signal (see col.5 line 3-col.6 line 62). However, Nakao does not teach a microphone disposed centrally in the width direction of the vehicle and it is well known to design where to place the microphones in difference positions. Therefore, it would have been obvious that Nakao could replace a microphone ( such as disposed centrally in the width direction of the vehicle) for market demand and economic.

Consider claim 2, Nakao teaches the antinode of the acoustic normal mode of the passenger compartment comprises an antinode in a primary mode or a secondary mode in a longitudinal direction of the passenger compartment (seecol.5 line 3-col.6 line 62).

Consider claim 6, Nakao teaches an active noise control system comprising:

a microphone positioned at an antinode (antinode in the position of the microphone is given by the formula (1), (2) and (3)) of a primary or secondary acoustic normal mode of the passenger compartment of a vehicle (see col.5 line 3-col.6 line 62);

canceling sound generating means (3) disposed in the passenger compartment for generating a noise canceling sound (see col.4 line 25-col.5 line 45);and a feedback control circuit (see fig.3) for being supplied with an output signal from said

microphone and generating an output signal to energize said canceling sound generating means ((3) and see col.4 line 25-col.5 line 45). However, Nakao does not teach a microphone disposed centrally in the width direction of the vehicle and it is well known to design where to place the microphones in difference positions. Therefore, it would have been obvious that Nakao could replace a microphone ( such as disposed centrally in the width direction of the vehicle) for market demand and economic.

6. Claims 7 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao (US PAT 5,651,072) in view of Mason (US PAT 5,410,607).

Consider claims 7 and 9-10, Nakao fails to teaches an active noise control system is comprising a storage box, where in said microphone and said feedback control circuit are housed together in said storage box, said feedback control circuit having an adjusting circuit for adjusting the amplitude and phase of disposed between a canceling sound generating means and the microphone, base on a transfer characteristic from said microphone to generate a noise cancellation signal which is of the same sound pressure as, but out of phase to, noise at the microphone; and the microphone is disposed beneath a front seat in the passenger compartment.

However, Mason teaches that an active noise control system is comprising a storage box (see fig.2), where in said microphone (200 (motion sensor)) and said feedback control circuit (100) are inherently housed together in said storage box (106 enclosure)(see col.4 line 60-col.5 line 60), said feedback control circuit (100) having an

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adjusting circuit (202, controller) for adjusting the amplitude and phase of disposed between a canceling sound generating means (104) and the microphone (200 (motion sensor)), base on a transfer characteristic from said microphone (200 (motion sensor)) to generate a noise cancellation signal which is of the same sound pressure as, but out of phase to, noise at the microphone (see col.5 lines 2-61); and the storage box has holes (fig.7a) defined therein for the passage of noise in the passenger compartment (see col.9 line 30-col.10 line 30).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the storage box, the microphone and the feedback control circuit as taught by Mason into Nakao. This would have positioned the apparatus in a location attached to the vibration surface, such that the intrusion into the desired quiet zone is minimized. This is advantageous in confined areas, such as cabins, where space is a premium.

It is noted that while Nakao does not teach that the storage box is disposed beneath a front seat in the passenger compartment, Nakao does indicate that some components of the noise control system, such as the vibration sensors, are placed beneath a front seat in the passenger compartment (see fig.27b (G7, G6)). Therefore it would have been obvious to dispose the storage box, which is a component of the active noise control system in the combined teaching of Nakao and Mason, beneath a front seat in the passenger compartment.

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-7 and 9-10 have been considered but are moot in view of the new ground(s) of rejection.



**Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9314


Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao, Lun-See whose telephone number is (703) 305-2259. The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao, Lun-See  
Patent Examiner  
US Patent and Trademark Office  
Crystal Park 2  
(703) 305-2259

  
**DUC NGUYEN**  
**PRIMARY EXAMINER**